

## THE DISTRIBUTION AND CONTROL OF EPIDEMIC MEASLES.\*

By THOMAS ROBINSON, M.R.C.S., D.P.H.

Medical Officer of Health of County of Leicester.

DR. ROBINSON'S paper was based on an experience of over 2,000 cases which occurred during an epidemic at Burton-on-Trent in 1898, when he was Medical Officer of Health of the Borough. The estimated population at that date was 51,664, mostly artisans and brewery employes, occupying houses containing from four to six rooms. Measles had been scheduled in the Notification Act since 1893, and in the course of the six following years there had been three biennial epidemics. The average annual number of deaths and the mean death-rates from measles in the successive quinquennia since 1889 had been 16, 18, and 32 deaths, giving rates of 0.37, 0.39, and 0.64 per 1,000, the higher figures in the last period being wholly due to the excessive mortality in the epidemic of 1896. The average annual number of notifications in the last five years was 1,360, but in 1898, with which he was now concerned, it rose to 2,048, with 31 deaths, equal to a case fatality of 1.5 per cent., and a death-rate of 0.60; the notifications represented probably 95 per cent. of the cases. The ratio of the children under school age (babies) to those in infant schools (infants) attacked, was as 80 to 100. He traced the outbreak to a tea meeting and entertainment, and it was remarkable that two infants were attacked whose mothers had been to the meeting, but had left them at home. At a later period two Sunday-schools evidently contributed to the spread of the disease in their districts. Of the "babies" constituting the first cases in their respective houses, 26 per cent. were in houses next door to which cases had already occurred: 11.5 per cent. were two doors, and 5.5 per cent. three or four doors removed from such foci of infection. The general conclusions to be drawn from a study of this epidemic were:

1. That measles introduced into a district through infant, Sunday or day schools, spread with a rapidity and to an extent inversely proportionate to the previous frequency of epidemics in the district, unless early and prompt closure of the schools were enforced;
2. When introduced into a district by means of isolated cases, it did not spread to any extent until the infant schools became infected;
3. That Sunday-schools played an important part in spreading the disease;
4. That "babies" might under certain circumstances be attacked before, but that the great majority were attacked after the invasion of the schools;
5. That house-to-house infection was a serious danger to "babies," the greater the proximity of the infected house.

As regards control, the closure of a day or Sunday-school so soon as it was found to be infected, *i.e.*, within three days, was the only effectual check, and it was noticed that while in districts where the

\* Abstract of a paper read before the Epidemiological Society, March, 1900.

outbreaks had recurred biennially, the incidence was almost confined to the infant departments, in those in which there had been no epidemic for six or more years the boys and girls were attacked in proportion of from 10 to 20 per cent. He concluded therefore :

1. That as hitherto practised, closure was nearly always enforced too late ;
2. That the closure, if carried out before the infant schools had been infected, would be of great benefit not only to the infants but to the " babies " ;
3. That where biennial epidemics had prevailed, the infant schools only need be closed ;
4. That the sanitary authority should be empowered to close Sunday-schools under similar circumstances ;
5. The temporary closure of any school, even for a few days only, might be the means of averting a threatened epidemic.

Compulsory notification was obviously the best means of obtaining information, but it should be supplemented by others, and the people should be educated so that the plea of ignorance of the nature of the infectious disease should no longer be admitted. The case fatality in notifying towns varied between 2·5 and 5·0 per cent., being often lowest in epidemic years, possibly as a result of notification. The paper was illustrated by numerous statistical tables and diagrams and a map.

Dr. R. DUDFIELD said that in the absence of compulsory notification he obtained much information from school teachers, given voluntarily, but it was not available during the holidays, nor for children not attending public schools. He attached much importance to disinfection ten days, if possible, after an attack. If the inspector, calling a fortnight after disinfection, found that there had been no fresh cases, the children were allowed to return to school. A high school working on rules requiring six weeks' exclusion of all children attacked, was the only one in his district that was not compelled to close during a recent epidemic.

Mr. SHIRLEY MURPHY said Mr. Robinson's statistics were very instructive, but he should like to know whether they were based on notified cases only, or on other additional information. The evidence of the positive advantages of notification must be very clear before one could advise its adoption in London. It was not the cost of the notification so much as that involved in the additional inspection, disinfection, etc., that had to be reckoned with.

Dr. NEWSHOLME thought that the Local Government Board might take up the closure of Sunday-schools, and the medical officer of health should protest against school treats at such times, as stultifying the closure of the school. For statistical investigation it was much to be wished that the children who had had measles, and were therefore insusceptible, should be distinguished from the susceptible, on whom alone the incidence should be calculated ; he had done this to a great extent in the case of scarlet fever in the Brighton schools. The mortality from measles being almost confined to children under five years, he thought that their attendance at school might be prohibited with advantage.

Dr. BOND remarked that in London the deaths from measles exceeded those from scarlet fever, enteric fever, and certain other infectious diseases, put together. In many cases a complication, as broncho-pneumonia, was returned as the primary cause of death, instead of as a secondary. Compulsory notification by the parents

would have a great educational value, and tend to secure honest efforts towards the isolation of the children instead of reckless exposure.

The PRESIDENT remarked on the advantage of physical boundaries as railways or rivers over arbitrary divisions, and on the evidence adduced of the conveyance of infection by third parties, and the value of disinfection. He would, however, point out that the Local Government Board had no power over Sunday-schools, and was able to enforce the closure of day-schools only by the co-operation of the Education Department, which refused the grant to schools failing to comply with the orders of the sanitary authority.

Dr. ROBINSON, replying, ascribed the apparently higher case mortality found by Dr. Dudfield to the incompleteness of the returns obtained from school teachers. He disinfected the houses with formalin, and clothing, etc., by steam, unless the cases were too numerous for his staff to cope with. The inspectors always called at adjacent houses, threatening proceedings if the Act were not complied with.

---

AN AUSTRALIAN APPOINTMENT.—At the meeting of the Adelaide Local Board of Health on February 12th last Dr. Thomas Borthwick, whose name is well and favourably known in connection with health and sanitary matters, was appointed Medical Officer for the City of Adelaide at a salary of £225 per annum. Dr. Borthwick, who was the only applicant for the position, was at the time of his appointment Medical Officer of Health to the East Torrens County Board of Health, Lecturer on Bacteriology to the University of Adelaide, Hon. Bacteriologist to the Adelaide Children's Hospital, Director of the Elder Bacteriological Laboratory, Vice-President of the Institute of Hygiene and Bacteriology, Fellow of the Royal Institute of Public Health, London, member of the Epidemiological Society, London, Fellow of the Incorporated Society of Medical Officers of Health, England, late Examiner in Hygiene, University of Adelaide, etc. The new city health officer will be allowed private practice, but in his public capacity will, in all probability, have to devote his attention solely to the city work.—*Australian Register*.

[Salaries do not appear to stand any better in South Australia than they do in England.—Ed. P. H.]

---

#### MEETINGS FOR MAY.

May 11th, North-Western Branch, at Manchester.

May 18th, Metropolitan Branch, at London.

May 19th, Scottish Branch, at Edinburgh.

May 25th, Northern Branch, at Newcastle-upon-Tyne.

---

#### ANNUAL PROVINCIAL MEETING.

This meeting of the Incorporated Society will this year be held at Brighton on Saturday, July 7th.

---